

Appln. No. 09/882,472

IBM Docket No. BOC9-2000-0016

Response dated Feb. 17, 2006

Reply to Office Action of Nov. 17, 2005

Docket No. 6169-157

REMARKS/ARGUMENTS

These remarks are made in response to the Office action of November 16, 2005 (Office Action). As this response is timely filed within the three-month statutory period, no fee is believed due.

At page 2 of the Office Action, Claims 1-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,078,886 to Dragosh, *et al.* (hereinafter "Dragosh") in view of U.S. Patent No. 6,408,272 to White, *et al.* (hereinafter "White").

Independent Claims 1, 10, 14, 23, and 24 have each been amended to further emphasize certain aspects of Applicants' invention. Dependent Claims 6, 19, and 25 have each been amended to maintain consistency with the remaining claims. Dependent Claim 12 has been cancelled. The amendments, as discussed herein, are fully supported in the Specification. (See, e.g., Specification, p. 4, line 26 – p. 5, line 5; and p. 9, lines 9-22.) Applicants respectfully assert that no new matter has been introduced by virtue of the claim amendments presented herein.

Applicants Invention

It may be useful to reiterate certain aspects of Applicants' invention prior to addressing the references cited in the Office Action. One embodiment of the invention, typified by amended independent Claim 1, is a method for processing speech audio in a network connected client device. The method can include selecting a speech grammar for use in a speech recognition system in the network connected client device and characterizing the selected speech grammar. The characterization can be based upon a pre-determined characterization.

The characterization, moreover, can be embedded within the selected speech grammar. The pre-determined characterization can specify at a predetermined

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complexity of the speech grammar and/or a preference for processing the speech grammar locally in the client device or remotely in a speech server. Further, according to the method, it can be determined based on the pre-determined characterization whether to process the speech grammar locally in the network connected client device, or remotely in a speech server in the network.

One advantage of embedding a predetermined characterization within the speech grammar is that at the point when the grammar is developed, a decision can be made by the developer as to the characterization of the grammar. Specifically, the developer of the speech grammar can mark the grammar for decoding the grammar in a remote speech server rather than a speech engine that executes locally in a network-connected device. (See Specification, p. 7, lines 11-14.) Accordingly, the pre-determined characterization established by the developer rather than the device determines whether the speech grammar is processed in the device or in a remote server.

The Claims, As Amended, Define Over The Prior Art

As noted above, independent Claims 1, 10, 14, 23 and 24 were each rejected as unpatentable over the combination of Dragosh and White. Applicants respectfully submit, however, that neither Dragosh nor White teaches or suggests every feature of Claims 1, 10, 14, 23 and 24, as amended.

Dragosh is directed to the operation of an automatic speech recognition service using a client-server architecture. (See, e.g., Col. 2, lines 54-61; see also Abstract.) White is directed to a distributed voice user interface system that includes a local device, which uses speech input issued from a user. (See, e.g., Col. 1, line 65 – Col. 2, line 4.)

Neither reference teaches or suggests, for example, characterizing a selected speech grammar based upon a pre-determined characterization that has been embedded within the selected speech grammar, as recited in each of the amended independent

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claims. It follows, therefore, that both references further fail to teach or suggest embedding in a grammar a pre-determined characterization that specifies either a predetermined complexity of the speech grammar or a preference for processing the speech grammar locally in a client device or remotely in a speech server, as also recited in each of the amended claims. Accordingly, neither reference teaches or suggests determining, based upon such an embedded characterization, whether to process the speech grammar locally in a network connected client device or remotely in a speech server in the network, as further recited in each of the amended independent claims.

At page 3 of the Office Action, White is cited as teaching "the evaluation of speech processing capability at a local device, and based upon the performance determination, transferring the speech processing to a remote device when the local device cannot handle the speech processing." As explicitly described in the portion of White cited in the Office Action,

"[a]t step 108, processing component 28 determines whether processing of speech input locally at local device 14 is sufficient to address the commands, instructions, directions, or requests from a user. If so, method 100 proceeds to step 120 where local device 14 takes action based on the processing, for example, by replying to a user and/or controlling primary functionality component 19. Otherwise, if local processing is not sufficient, then at step 110, local device 14 establishes a connection between itself and remote device 12, for example, via telecommunications network 16 or local area network 18.

"At step 112, local device 14 transmits data and/or speech input to remote system 12 for processing therein. Local device 14 at step 113 then waits, for a predetermined period, for a reply or response from remote

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system 12. At step 114, local device 14 determines whether a time-out has occurred--i.e., whether remote system 12 has failed to reply within a predetermined amount of time allotted for response. A response from remote system 12 may comprise data for producing an audio and/or video output to a user, and/or control signals for controlling local device 14 (especially, primary functionality component 19)." (Col. 17, line 63 - Col. 18, line 17.)

As explicitly revealed in the quoted portion of the reference, White relies exclusively on the processor itself to make a determination as to whether or not the resources of a local device are sufficient to process a speech input. White makes no mention, either explicitly or implicitly, of a speech grammar in which is embedded a predetermined characterization. Accordingly, White neither teaches nor suggests determining whether to process a speech grammar in a local device or in a remote server based upon a predetermined characterization embedded within the speech grammar. The determination in White is based on the processor's assessment of device resources, not a grammar-embedded characterization, as recited in amended independent Claims 1, 10, 14, 23, and 24.

Dragosh similarly fails to teach or suggest characterizing a speech grammar based upon a pre-determined characterization embedded within the speech grammar. Indeed, as pointed out at page 3 of the Office Action, Dragosh "does not explicitly teach determining at the client side whether to process at a server" or not. At page 4 of the Office Action, however, it is stated that Dragosh teaches the determination of a grammar complexity. Dragosh's determination, like that of White's, however, has nothing remotely to do with determinations based on a pre-determined characterization embedded within a selected grammar.

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In a portion of the reference cited in the Office Action, Dragosh describes the following with respect to complexity and a grammar identifier:

"At step 301, ASR client 130 receives a request from the application to load a client grammar. Rather than send the client grammar as a data file to ASR server 100 at step 302, however, ASR client 130 instead sends to ASR server 100 an identifier representing a "canned" grammar; a "canned" grammar would, e.g., be a common grammar, such as TIME-OF-DAY or DATE, which ASR server 100 would already have stored. Alternatively, ASR client 130 could send to ASR server 100 an IP address, such as a URL-compatible address, where ASR server 100 could find the desired grammar file. ASR server 100 at step 303 receives the grammar identifier or URL grammar address from ASR client 130, locates and loads the requested client grammar at step 304, and at step 305 returns a grammar handle to ASR client 130. Similar to the steps described above with respect to FIG. 2, ASR client 130 receives the grammar handle from ASR server 100 at step 306 and returns the handle to the application at step 307. For the pizza ordering example, the steps described above in connection with FIG. 2 would be the same, except that ASR client 130 would send to ASR server 100 a grammar identifier for the PIZZA grammar (if it were a "canned" grammar) or a URL address for the location of a file containing the PIZZA grammar; ASR server 100 would, in turn, retrieve a file for the PIZZA grammar based upon the grammar identifier or URL address (as sent by the ASR client) and then load the requested PIZZA grammar." (Col. 5, line 30-45.)

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Applicants respectfully submit that Dragosh's identification of a "canned" grammar already stored on a remote server has nothing to do with determining the specific complexity of the grammar; it merely is a determination that if a grammar is already stored on a server, there is no need for the grammar to be sent to the server by the client. This suggests nothing, however, about the relative complexity of the grammar. It merely draws a distinction between canned grammars already stored on a server versus those that must be sent to the server since they are not already stored there. Dragosh's further references to the "grammar identifier" merely identifies the location of the grammar.

More fundamentally, though, regardless of whether or not Dragosh is implicitly describing a determination of the relative complexity of a speech grammar, there is not the remotest suggestion that any determination whatsoever is made based upon a pre-determined characterization that has been embedded within the speech grammar. Indeed, nowhere does Dragosh teach or suggest a pre-determined characterization that is embedded within a speech grammar, as recited in each of amended independent Claims 1, 10, 14, 23, and 24. Not only does Dragosh fail to teach or suggest a pre-determined characterization embedded within a speech grammar, but moreover, Dragosh, like White, fails to teach or suggest an embedded pre-determined characterization that specifies either a complexity of the speech grammar or a preference for processing the speech grammar in a network-connected device or remote server.

Accordingly, Dragosh and White, alone and in combination, fail to teach or suggest every feature recited in amended independent Claims 1, 10, 14, 23, and 24. Applicants respectfully submit, therefore, that the claims define over the prior art. Applicants further respectfully submit that, whereas the remaining claims each depend from one of the amended claims while reciting additional features, the dependent claims likewise define over the prior art.

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CONCLUSION

Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

Date: February 17, 2006



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